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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/930,990	08/17/2001	Wen-Shi Huang	H010019	8682

27760 7590 05/08/2002

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EXAMINER

PATEL, NIHIR B

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 05/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/930,990

Applicant(s)

HUANG ET AL.

Examiner

Nihir Patel

Art Unit

3743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Claim Objections

1. Claims 3 and 12 are objected to because of the following informalities: In claims 3 and 12 the applicant states that the cooling fans are distributed under and around a region extending from a central region of the centrifugal fan to a periphery of the centrifugal fan where as in my opinion the applicant is referring to cooling fins not cooling fans. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1,6,7,8,11, and 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Miyahara et al. U.S. Patent No 5,940,268. Referring to claim 1, Miyahara discloses a heat sink and electronic device employing the same that comprises a heat sink (82), including cavity; and a centrifugal fan (85), formed in the cavity. Refer to figures 8 and 9.

Referring to claim 6, Miyahara clearly shows that the cavity matches the centrifugal fan (85). Refer to figures 8 and 9.

Referring to claim 7, Miyahara clearly states that the heat sink is made of a material chosen from the group consisting of aluminum, aluminum alloy, copper, copper alloy and the combination thereof. Refer to column 2 lines 45 through 50.

Referring to claim 8, Miyahara discloses a heat sink and electronic device employing the same that comprises a heat sink (82), including a plurality of cooling fins (83), the cooling fins defining a cavity; and a centrifugal fan (85), formed in the cavity so as to be embedded into the heat sink (82). Refer to figures 8 and 9.

Referring to claim 11, Miyahara clearly shows that the cavity matches the centrifugal fan (85). Refer to figures 8 and 9.

Referring to claim 13, Miyahara clearly states that the heat sink is made of a material chosen from the group consisting of aluminum, aluminum alloy, copper, copper alloy and the combination thereof. Refer to column 2 lines 45 through 50.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2,3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyahara et al. U.S. Patent No. 5,940,268 in view of Liang et al. U.S. Patent No. 2002/0018336.

Referring to claim 2, Miyahara discloses the applicant's invention as claimed with the exception of providing a plurality of cooling fins defining the cavity.

Liang discloses a heat apparatus that does provide a plurality of cooling fins defining the cavity. Refer to figure 1. Therefore it would have been obvious to modify Miyahara's invention by providing a plurality of cooling fins that define the cavity in order to speed up the cooling process.

Referring to claims 3 and 12, Miyahara discloses the applicant's invention as claimed with the exception of providing cooling fins that are distributed under and around a region extending from a central region of the centrifugal fan to a periphery of the centrifugal fan.

Liang discloses a heat sink apparatus that does provide cooling fins that are distributed under and around a region extending from a central portion of the centrifugal fan to a periphery of the centrifugal fan. Therefore it would have been obvious to modify Miyahara's invention by providing cooling fins that extend from a central portion of the centrifugal fan to a periphery of the centrifugal fan in order to speed up the cooling process.

Claims 4,5,9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyahara et al. U.S. Patent No. 5,940,268 in view of Heitzig U.S. Patent No. 4,612,979.

Referring to claims 4,5,9, and 10, Miyahara discloses the applicant's invention as claimed with the exception of providing a cover that is formed on the heat sink and the centrifugal fan that serves as an air seal to keep airtight.

Heitzig discloses an apparatus for the cooling of electronic assemblies or components that does provide a cover that serves as an air seal to keep airtight. Therefore it would have been obvious to modify Miyahara's invention by providing a cover that serves as an air seal to keep airtight to speed up the cooling process.

Claims 14,15,17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al. U.S. Patent No. 2002/0018336 in view of Heitzig U.S. Patent No. 4,612,979.

Referring to claims 14 and 15, Liang discloses the applicant's invention as claimed with the exception of providing a cover that is formed on the heat sink and the centrifugal fan that serves as an air seal to keep airtight.

Heitzig discloses an apparatus for the cooling of electronic assemblies or components that do provide a cover that serves as an air seal to keep air tight. Therefore it would have been obvious to modify Liang's invention by providing a cover that serves as an air seal to keep airtight in order to speed up the cooling process.

Claims 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al. U.S. Patent No. 2002/0018336 in view of Miyahara et al. U.S. Patent No. 5,940,268.

Referring to claim 16, Liang discloses the applicant's invention as claimed with the exception providing a cavity that matches the centrifugal fan.

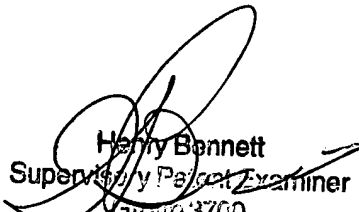
Miyahara discloses a heat sink and a electronic device employing the same that does provide a cavity that matches the centrifugal fan. Therefore it would have been obvious to modify Liang's invention by providing a cavity that matches the centrifugal fan in order to reduce space and increase the cooling process.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Nihir Patel whose telephone number is (703) 306-3463. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful the examiner supervisor Henry Bennett can be reached at (703) 308-0101.

NP
April 24, 2002


Henry Bennett
Supervisory Patent Examiner
Group 3700